

**DC-DC CONVERTER HAVING ACTIVE TRANSIENT RESPONSE  
COMPENSATION CIRCUIT EMPLOYING FLYBACK INDUCTOR**

**ABSTRACT**

A DC-DC converter has an output bus coupled to power a load. A voltage transient compensation circuit has a first switch between a voltage input bus and the output bus, and a second switch between the output bus and a flyback transformer coupled to a reference voltage terminal. When the voltage on the output bus drops below a first threshold, the first switch couples and thereby transfers energy from the voltage input bus to the voltage output bus and the load. When the voltage on the output bus exceeds a second threshold, the second switch is closed, transferring energy from the output bus to an input winding of the flyback transformer. When the voltage on the output bus drops back in a range between the two thresholds, the second switch is opened, and the flyback transformer transfers stored energy back to the voltage input bus.